A Work Project, presented as part of the requirements for the Award of an International Masters in Management Double Degree from the NOVA – School of Business and Economics and SHG – Warsaw School of Business and Economics

THE IMPACT OF DOOD-FRANK ACT & BASEL III IN GOLDMAN SACHS

Francisco Vilaça Santos Silva | #24599

A Project carried out on the Master in Management Program, under the supervision of:

Professor Rafael Zambrana

MAY, 2017

THE IMPACT OF DOOD-FRANK ACT & BASEL III IN GOLDMAN SACHS

Abstract

In the context of an economy that still lives with a silhouette imposed as a response to the 2008 crisis, this thesis aims to understand the impact of the Dodd-Frank Act and the Basel III on Goldman Sachs. We find that Goldman has not only fulfilled but often exceeded the requirements imposed by regulators. Moreover, we explain how the firm accessed the challenge of regaining its reputation as one of the best in class in the Wall Street world. It was possible to verify that Goldman was successful in their effort to adapt itself to the new regulations, becoming a more liquid, efficient and solid bank.

Keywords - Dodd-Frank Act, Basel III, Structured Finance, 2008 crisis

Acknowledgments

Foremost, I would like to express my genuine gratitude to my advisor Professor Rafael Zambrana for his precious support, enthusiasm and patience. The fact of being extremely understanding with me while I was struggling to reconcile the development of this thesis with the start of my professional career in an extremely demanding environment gave me the strength to not quit.

I also would like to thank Goldman Sachs for providing me with the experience and testimonials that are one of the pillars of this thesis.

Last but not least, I would like to thank my friends for encouraging me in times of pressure, and to my family and girlfriend for all the support and endless love during my life. My success is, and will always be, their success.

Biographic Reference

Francisco Vilaça Santos Silva was born in Portugal, Santa Maria da Feira in 1992.

Enrolled on the Bachelor Degree in Management on FEP – Schools of Economics and Management – University of Porto, and graduated in 2015.

In 2015 enrolled on the International Master in Management in NOVA SBE in Lisbon, and benefited of the partnership with SGH – Warsaw School of Business and Economics for the purpose of achieving a Double Degree. This project is aimed to complete the master studies.

On February 2017 he started his professional career at Goldman Sachs.

Motivation

Since the first day I started work at Goldman Sachs I was presented with the culture that I would come to know, as well as with the firm´s values, principles, goals and best practices. Soon I realized that the post crisis response, external and internal, were on the guard of much of what I was being deal with. I have been attentive and studying the financial industry for a long time, and now I find myself realizing the real impact that the 2008 crisis and the regulation had on the financial sector.

Goldman Sachs is a firm that always fascinated me, not only by their image of excellence and outstanding results, but also because of the way it was exposed to the public scrutiny in the years that followed the crisis. I personally believe that the reason behind the image that was created around Goldman Sachs was one characteristic inherent of the human being: making the successful ones the preferred target.

At the moment I began to idealize this thesis, I felt that it was the time to move away from my personal beliefs, and trying to understand the real impact that the crises outcome had on Goldman Sachs and how they faced it internally. More than numbers and statements, I was enthusiastic to know details about the internal changes in procedures and behaviors.

Finally, I am motivated to understand if the implementations made by GS to fulfil the requirements of regulators are part of the company strategy on the long run, and how its employees perceived that.

‘We did a good job of managing risks but we did a less good job of managing our reputation.’ – Lloyd C. Blankfein, CEO Goldman Sachs, The Economic Times, 2010.

1. **Introduction**

September 2008 crash brought the largest bankruptcies in world history, shoving over 30 million people to unemployment and, as a déjà vu of the 1929 crisis, led many countries to the hedge of insolvency.

The world was still trying to absorb the magnitude of this shocking event, and, at the same time, many questions were already raised. What has gone wrong so badly? Easy lending in US housing market? The lack of responsibility of mortgagors? The absence of government regulation on US? Or the "light touch regulation" on London? All valid questions, subject to intensive studies and conclusions, some of them tangible while others rely heavily on personal interpretations.

In July of 2010, the White House, led by the president Barack Obama, signed the Dodd-Frank Wall Street Reform and Consumer Protection Act, in order to, not only encourage the transparency and financial stability in US, but also to eradicate the idea that some companies are "too big to fail", debunking the bailouts and protecting the American taxpayers.

In late 2009, The Basel Committee on Banking Supervision published the first version of the Basel III, in which gave the banks 3 years to fulfill the requirements set out therein. This regulatory framework came up as an answer to the flaws revealed in the 2007-08 crisis, with the purpose of imposing proper leverage ratios and capital requirements to the banks, as an attempt to reduce the risk of a future globalized crash.

Regarding both financial reforms, one matter of great interest is to understand the impact of the growing Bank Supervision in the Investment Bank's strategies, financial results and behavior.

One investment bank which has undeniably been presenting excellent financial results over the years, being recognized as one of the great players of the financial world is Goldman

Sachs. From humble beginnings in 1869, GS grew and evolved until becoming one of the largest investment banks in the world. After the meltdown, the twinkling star of Wall Street, which was always recognized by the excellence of its people and high standards of distinction in all of its activities, was subjected to a very exhaustive public scrutiny.

Hence, in this thesis we assess the impact of Dodd-Frank Act and Basel III in GS' activity, namely in its liquidity risk, capital requirements, leverage, and operational behavior. Two main questions are whether if these financial reforms are different from the previous ones, and if something has changed in the financial industry and more particularly in GS.

2. Literature Review

2.1 Structured Finance – Risk Transfer Instruments

According to F. John Mathis, Frank Tuzzolino and Venkat Ramaswamy (2010), structured finance has the purpose of shifting cash flows and spread the risk by combining financial debt instruments which are then divided in portfolio securitized slices of credit risk accordingly whit their risk levels - tranches. The result of this combination is sold as new formulas of credit and liquidity enhancements. Structured Finance emerged in the 70´s and has evolved over time increasing the degree of complexity. In the 90´s, financial engineering had a substantial role in developing structure products to meet the cash-flow and risk preferences of investors, emerging a hole new world of credit and liquidity enhancement techniques, such us the pure credit derivatives like Credit Default Swaps (CDS).

Throughout the 2000´s, with the objective of decreasing the overall cost of loans and meet more accurately the profile of investors, the financial sector developed the first synthetic products and a vast variety of complex financial instruments, such as hybrid products like Collateralized Debt Obligation (CDO) of bonds and loans. According to Andreas A.Jobst (2005), the promptest developing area of structured finance have been the CDO´s. Embodying a form of Asset-Backed Securitization (ABS), a CDO transfigures a diversified pool of high exposure into tranches – capital market debt instruments.

2.2 Role of Structured Finance on the Financial Crises

Starting in the United States (2007), one of the scapegoats of housing market bubble was the defaults on the subprime loans, by causing not only a raise of the interest rates but also by shrinking the access to credit. Analyzing in more detail, from the total of mortgages in the U.S, the subprime mortgages represented less that 20%. However, the fast spread of defaults and foreclosures, the decline of prices in the housing market combined with a drastic economic recession and the consequent high unemployment rate, amplified the magnitude of the default beyond subprime loans. Investors who safeguarded themselves in products that assured them the level of risk and return they were willing to take, began to discredit the market and sought liquidity on products that were contaminated with toxic products. As a result, the economy slackened, and the year 2009 was marked by a negative real GDP growth for four successive quarters. What started as a delinquency on subprime loan in U.S, revealed to be a poisonous fog that has spread throughout the world economy.

According with F. John Mathis, Frank Tuzzolino and Venkat Ramaswamy (2010), some of the principal causes associated with the failure of subprime loans were the lack of diligent training and screening verification of the new employees by the mortgage companies and the lack of consistency and due diligence in processing new borrowers. Both facts contributed for the lack of quality in this industry and for the conception of dubious interests in this sector as well. Consequently, the percentage of mortgage delinquency and unemployment rate soared to critical levels, revealing to be intrinsically related with each other (see appendix 2 - figure 1).

According with Greenspan, A. (2010), the subprime mortgages were the most lucrative niche of U.S housing market, and in 2007 this niche was valued at $1.2 trillion, 600 percent increase since 2001. Therefore, it comes with no surprise that lenders were highly motivated to sell such mortgages. However, what can be perceived as a surprise, after knowing the impact of this structured products in the meltdown, is that, according with Gorton, G (2010), 82 percent of this debt was rated AAA by U.S rating agencies.

Regarding the role of structured finance in the economy, it is important to note that, accordingly with Adrian Blundell-Wignall (2007), financial innovation contributed for the growing leverage during the 2000´s, resulting in innumerous benefits such as, the extended home ownership to lower-income families, corporate restructuring which promoted higher productivity as well as risk transfer and dispersion to those who were willing to afford those risks. Nevertheless, at the same time, it had some negative effect that performed a significant role on the 2007-08 financial crisis, underwriting defaults and delinquencies in the underlying mortgages. In order to understand how the structured finance works, its interesting to observe that the relationship between the mortgage insurers, asset originators, financial products, banks, investors and rating agencies is not as intimate as it was before the securitization of this products (see appendix 2 - figure 2).

One major issue that is subject of study by Adrian Blundell-Wignall (2007) is related with the modification of major features regarding lending´s risk management and credit extension, since there is a decrease in the incentives of loan originators to undertake due diligence on borrower repayment capabilities, since the risk is transferred for someone else.

2.3 Structured Finance after the crisis

According to Gert Wehinger (2009), the 2007 crisis brought no only a colossal, fast and global obliteration of financial capital, but also a weakening in the investors confidence on securities and structured products. In order to recover from crisis, it was needed a huge effort from most of the interested parties: governments, central banks, shareholders, taxpayers, bond holders and depositors. Therefore, one major issue addressed after the crisis was the necessity of the re-establishment of investor confidence in the structured products as a way of credit expansion and risk transfer instrument. This confidence was crucial to the recovery from crisis, and for the future of the securitization. “Securitization, when done prudently, still presents benefits for pooling and distribution credit risk and for offering banks an alternative source of financing” accordingly with IMF (2009).

According with Blundell-Wignall (2007), in order to restore the investors confidence in securitization it was decisive to increase the transparency regarding the tranches makeup and decrease the level of complexity. This meant fewer tranches, less special structural features, high level of transparency of the underlying assets and more standardization of the information package. Moreover, in order to align the incentive of originators and end investors, there were made several proposals to the European Parliament, U.S Treasury and International Organization of Securities Commissions (IOSOC), suggesting that a porting of the securitization should be held by the originator and the structuring body.

2.4 Regulatory Reform Overview

Banking’s regulation history has been a series of tides marked by deregulation followed by currents of tighter policies. Between them, there is a financial crisis which usually follows economical booms. 2008 meltdown and the consequent recession lead to debates on solidification and stabilization of financial markets, and during the years that followed the crisis, national and international supervisors implemented new regulations causing noteworthy changes in the banking industry.

2.4.1 Financial Reforms Prior to the 2008 Crisis

In the years following the crisis, emerged a number of studies and reports on the financial reforms in force until the meltdown.

Basel II

According with the Basel Committee (2006), Basel II is a reviewed and upgraded version of the one created in 1988. This document was revised with the objective of improving the risk calculation while performing capital measurements. This Committee introduced three major pillars: the first pillar, not only presented a system based on external credit ratings in order to magnify the minimum capital requirements defined on Basel I, but also promoted the VaR (Value at Risk) to measure credit, market and operational risk; the second pillar encourage the regulators intervention in an early stage by promoting a thither supervision on bank's capital level when comparing with bank's risk profile; the third pillar fosters bank's holdings transparency. As stated in the same document, the Committee trusted weightily on credit rating agencies, and restricted the financial institutions aptitude to define their risk aversion independently.

According with Robert C. Pozen (2010), relying on the credit rating agencies and internal rating systems to measure the minimum capital requirements promotes the worsening of a crisis. He explains the reasons behind his mistrust with the fact that credit rating agencies are unregulated, and their ratings can be extensively dissimilar. Moreover, according with Sheila Bair (2009), being the banks the supervisors of their own holdings based on credit rating agencies evaluation could misguide them regarding their risk profile, assumptions and methods. Moreover, she states that the bank´s internal risk models had been proven wrong more times than desired.

Another negative point was described by Jón Danielson (2001), by affirming that Basel II increased the systemic risk, since it created a huge difficulty to the banks on selling their risky assets when the prices begin to fall, as the other companies are unable to accept higher levels of risk, leading to a decrease in the liquidity of the market.

Laurent Balthazar (2006) identified the most remarkable novelties of Basel II as the higher sensitiveness of capital requirements to different risk levels, the introduction of regulated capital needs to operational risk, the higher level of flexibility of national regulators, the increase of national regulator´s power regarding the implementation of pillar 2, a more accurate recognition of risk reduction techniques, and lastly, the mandatory, detailed and explicit policy of disclosure of risk and exposure.

Basel II created many opportunities but also many challenges, and it was stated in the that document that this reform constituted an improvement of Basel I in order to be able of following the most sophisticated banks and financial products. Therefore, since its inception, it has assumed as a necessary but not sufficient agreement since the development of the financial engineering was enormous in the subsequent years.

2.4.2 Financial Reforms following the 2008 Crisis

Basel III

The Third Basel Accord was agreed, in the same voluntary format as Basel I & II, in 2010-11 and its implementation, idealized for 2013, was extended until 31 March 2018.

Emerging as a response to 2007 financial crisis, according with Thomas F. Cosimano and Dalila S. Hakura (2011), Basel III was created as a reaction to the 2007 financial crisis which exposed substantial weaknesses in Basel II since numerous large bank holding companies agonized large declines in ROE from losses on off-balance sheet activities despite maintaining the capital ratios required under the Basel II.

Jean-Claude Trichet, in the Basel Committee (2010), stated that the purpose of strengthening the financial global standards, was enabling banks to meet tighter requirements while supporting the economy recovery and growth.

Basel III subjoin several changes to Basel II, and according with Jordi Gual et al (2010), the principal improvement was related with the increase of the quality of capital and its requirements. While Basel II was divided in two categories, Tier 1 and Tier 2, the “core capital” approach of this new regulation is defined as component of Tier 1 capital. Also referred as Common Equity Tier 1, core capital presents an improved definition of capital, which includes capital or participation units, reserves, minority interests in banking subsidiaries and public sector injections as part of its definition. The core capital can be calculated as a ratio by dividing the core capital by the the volume of risk-weighted assets.

Jodi Gual et al, also identified as a major innovation of Basel III the implementation of a capital conservation buffer, which is composed by the highest quality capital (+2.5% of core capital) and has the purpose of reducing capital loses during period of financial crisis. This buffer, can also be complemented by an additional buffer defined by national regulations, branded as the countercyclical capital buffer. This additional buffer is composed entirely by core capital (up to 2.5%) in order to accrue the hidden risk in periods of high credit growth, and constraints will be inflicted on dividend payments if its falls below 2.5% over the minimum requirement. Therefore, according with the same author, Basel III introduced a "upward shift in quality of capital". According with BIS (2010), the conservation buffer is consistent with the core capital ratio, since it includes amounts used to meet the 4.5% minimum core capital requirement, but excludes any additional core capital needed to meet 6% Tier 1 and 8% total capital requirements (see appendix 2 - figure 3).

According with Basel III in "A global regulatory framework for more resilient banks and banking system (December 2010. Rev June 2011)", in addition to three main implementations of this accord (increase of the quality of capital, increase of capital requirements and the creation of capital buffers), there are also more 4 crucial characteristics of this reform. The first feature is related with the way risk is calculated for specifically defined exposures, such us trading book activities, securitizations, off-balance-sheet vehicles and counterparty risk. The second was introduced as a complementary measure to risk based solvency ratio, the non-risk-based leverage ratio, which aims to constrain the build-up of leverage within the financial system. The third critical improvement was the insertion of a short-term liquidity coverage ratio and a long-term net stable funding ration (see Appendix 1–Liquidity Ratios). Both ratios were implemented in order to ensure that banks are able to outlive possible stresses with markets, by having enough liquidity buffers to not rely so deeply on short-term funding. Lastly, the implementation of additional guidelines to Pillar 2 and 3, regarding liquidity risk management, financial instrument valuation good practices, stress tests, corporate governance and remuneration.

Despite Basel III framework being able to shift from the highly criticized micro-prudential to a macro-prudential direction, according with Blundell-Wignall (2010) and Kupiec (2013), it does not go far enough. One of the critics pointed to this framework is related with its complexity when compared when the prior Basel accords, since it causes serious questions on the robustness, effectiveness, and generates higher uncertainty (Kupiec, 2013).

The Dodd-Frank Act

The Dodd-Frank Wall Street Reform and Consumer Protection act, commonly known as Dodd-Frank act was signed by then President Obama in 2010, and is one of the most far-reaching reform bills of the United States' history. Analogously to Basel III, the Dodd-Frank act was created as a reaction to 2008 financial crisis, causing, unquestionably, a huge impact in the financial industry, namely on its biggest players.

According with the Dodd-Frank act (2010), its stated aim is "*to promote the financial stability of the United States by providing accountability and transparency in the financial system, to end 'too big to fail', to protect the American taxpayer by ending bailouts, to protect consumers from abusive financial services practices, and for other purposes."* In order to achieve what it proposes, this act made numerous improvements on the U.S. Regulatory Structure, and empowered the FED (see appendix 2 – figures 4 and 5), which now, has the obligation of *"identify, measure, and monitor risks to the financial stability of the United States",* by being the regulator of, not only financial institutions such as investment banks, but also of non-financial institutions such as insurance companies. Moreover, FED is in charge of determining prudential standards such as Liquidity and Risk-based Capital Requirements, Risk management, Leverage limits, Concentration limits and Credit Reporting Requirements

One of the most highlighted sections of this act is the so-called “Collins Amendment”, which sets the new standards of capital requirements to the Banks and also to nonbank financial institutions supervised by the FED. According with Arthur D. Postal (2014), this section determines the principles to be used by regulators when establishing the new capital requirements. Those new requirements are countercyclical by requiring that banks must hold massive amounts of capital when the economic expansion, and less amounts when the economic contraction. Therefore, these requirements will soothe the financial growth of banks in periods of expansion, and provide flexibility to them in times of recessions, resulting in more stable earnings. Items like repurchase agreements, credit and interest swaps will be accountable for the asset base of ratios calculated by the regulators.

According with Martin Neil Baily et al. (2017), there is no financial regulation gifted enough to prevent all financial stress events, however, by imposing higher prudential standards, the Dodd-Frank Act makes sure that financial institutions are able to keep solvent when such events occur. Moreover, it shows an attempt to find long-term solutions to the usual pre-crisis glitches by imposing all banks to hold more than \$50 billion in assets. The “Collins Amendment” impact on Tier 1 was highly significant, since during 2000s until 2008 this ratio oscillated between 8 and 9 per cent of risk-weighted assets, and after the implementation of this amendment it rose up to 12/14 per cent until nowadays (see appendix 2 - figure 6).

One of the liveliest debated parts of the Dodd-Frank Act is known as The Volcker Rule. According with The Dodd-Frank Act (2010), this provision limits investment banks and large financial institutions of proprietary trading, when isn´t at the best interest of its clients, and of sponsoring or holding an ownership interest in a hedge fund or a private equity fund.

Moreover, this rule not only interdicts banks from investing more than 3% of Tier 1 capital in private equity, hedge funds and hedging instruments, but also requires that most of the derivatives must be traded on exchanges. This financial reform emphasizes, that the purpose of this rules is to minimize the risk associated with an eventual failure of one dealer, which can escalate to other investors.

According with the The Dodd-Frank Act (2010), one of the most important reactions to the 2008 financial crisis covered by this reform is related with one the most blamed issues for the crash – unconstrained asset securitization. The Act addresses this distress by imposing credit-risk retention obligations to those who issue, transfer or sell asset-backed securities. Securitizers are now required to retain at least 5% of the credit risk for residential mortgages, being forbidden of hedging or transferring that risk.

Lastly, in order to address the dangerous abstract principle of "too big to fail", The Dodd-Frank Act implemented The Orderly Liquidation Authority (OLA). This major regulatory adjustment was introduced in the Title II of the Act (20110), and it provides a framework for liquidation by the FDIC of institutions with systemic risk (see appendix 2 - figure 7).

Although it does not prohibit a bailout of financial institutions, large institutions are now obligated to periodically submit plans for smooth and orderly shutdown, in order to be prepared in case necessity. According with Martin Neill Baily, et all (2017), the OLA assumes as a crucial point of this Act, in order to deal with possible bankruptcies of important financial institutions in the future. Martin Neil Baily et all (2010), also explains that besides FED and FDIC retaining some emergency influences under OLA, (FED with the capacity of implementing an emergency program, and the FDIC aptitude to impose guarantees on the banks by them regulated), both are harshly restricted to support a failing firm on individual basis. Therefore, the demystification of the "too big to fail" idea has been in course on U.S.

3 Methodology

"We understand that there is a disconnect between how we as a firm view ourselves and how the broader public perceives our role and activities in the market… To address this, we need a rigorous self examination."- Lloyd Blankfein, chairman of the board and CEO (2010)

This statement, from Goldman Sachs CEO, Lloyd Blankfein, on May 7, 2010, to The New York Times in "Goldman to Review Its Business Practices", is on the basis of our motivation to answer this thesis' research question. Consequently, more than analyze only numbers, we found more interesting trying to reach conclusions about what was the influence of the reforms – Dodd-Frank & Basel III – in Goldman Sachs' operational procedures as well.

The methodology will be based on my personal experience in the firm, but mostly on interviews with more senior levels from Securities, Operations and Finance Divisions. We will ask directly to senior levels of the firm to make a comparison between GS before and after the meltdown, as well as what internal changes were made and how they were put into practice. In order to support the interviews, we will analyze financial reports and other recent publications, such as the creditor information report, focused on the firm's performance from the point of view of risk management. Finally, from the three interviews we will try to understand if those changes were effective and on a long-term strategic vision.

3.1 Securities Division Perspective

Personal Experience

Motivated, this is the word that best describes my state of mind on February 6th, 2017. It was the beginning of my professional career and extraordinarily it was on that very same day that I felt the impact of the crisis of 2008 in the firm´s culture.

The first thing that I was presented with, was the culture of the firm, in which one major items that represents the "GS way" is the Business Standard Committee (BSC). This committee was formed in 2010, as a response to the crisis and regulation, to ensure that the firm's business standards and practices are of the uppermost quality and that they exceed the expectations of clients, stakeholders and regulators in order to contribute to overall financial stability and economic opportunity. Despite being a new hire, I have been dealing with the outcomes of the BSC on a daily basis. I can say that, from my personal experience, there are three main points that made me feel the importance that the firm gives to the BSC recommendations.

The first one is related with the procedures. Basically, in order to provide the best experience to every customer, all of the most sensitive tasks requires a double check from senior management, hence there is no space for mistakes, and each team makes the word "perfection" is major goal. Risk mitigation is a concept that is part of the daily vocabulary, being one of the messages that managers pass on to new hires in an extremely clear way.

The second is related with ownership. This means that each small step is of the responsibility of the ones who executes it (the owner), so every employee puts all his effort even in the smallest tasks. Consequently, the service provided to the clients is always of the utmost personalization, trustworthiness and quality as possible. Personally, taking ownership of my work incites me to measure the impact on the company of each of my tasks, makes me feel engaged with the objectives of the team and ultimately with the goals and strategy of the firm as a whole. Moreover, I believe that is the best way to develop myself as a professional by felling that my work is valued, and as GS is a company with a culture that encourages workers to aim for higher levels within the firm, having the responsibility of my work motivates me to be a high performer.

Lastly, one of the focus of the firm is the consistent, daily and high level training programs that are offered to its employees accordingly with his role and functions. The main objective of this programs is to endow its employees with the knowledge required to perform their job in the best way possible and to minimize the risks associated with high demanding tasks. All employees, independently of the division, location, role and hierarchical position have mandatory training programs, and also a wide range of optional ones according with the personal interests of each individual. By completing several hours of training, I feel that the firm is giving me the opportunity to learn and develop myself as a professional, by increasing the confidence in my work, taking into account the risks it entails.

Securities Industry - Before Crisis

My first interview was with one Vice President from the Securities Division who have been with the firm for more than 14 years. The fact of having experienced the transition from GS before to GS after 2008 crisis, was one of the reasons that made this interview so interesting. Firstly, he started to explain that the years between 2000 and 2008, were times in which the bull market reached its peak, the investors were willing to take huge risks and the profit margins increased heavily across the industry. Moreover, the volume of trades increased on a daily basis, and the products traded were highly complex in order to match the investors risk willingness. He explained that at that time, the banks, the hedge funds and investors were willing to take higher risks, increasing their own exposure to the market.

Before 2007, there was no proper investigation in the type of investor, regarding the kind of complexity on the transactions made by all the financial industry. The competition among financial institutions, the lack of supervision, and the irresponsibility of many investors turned the financial industry in a marshy ground, where the ability of managing the risks proved to be vital to succeed and survive in that market.

During those golden times, and taking into account the complexity of the products, it was easy to profit from almost each transaction, hence the investors made as much transactions as possible. Moreover, because of the golden fog that hovered the markets, there was not what is called the "expense management", since the expenses were just not a factor that needed to be addressed by financial institutions.

Securities Industry - Impact of Regulation

Regarding his own experience, the highest impact of regulation that he felt in the world of securities was the implementation of a tighter regulation on "swaps dealers", the simplification and stabilization of the financial products and the decline on margins as well as on the volume of trades. He highlighted that, the new regulation over exchanges and the clearing houses are crucial to make sure that investors are not exposed to the default risk of counterparties or financial institutions, stating that it is vital for the credibility and transparency, not only of the markets, but also of the competition in the financial industry.

Goldman Sachs – Impact of Regulation

Regarding the impact of the meltdown and regulation on GS, this VP stated that with all the public scrutiny and regulation the entirely industry changed, but with GS it was different, resulting in extremely detailed changes. As he explained, Goldman Sachs is, and it has always been, the best in class from a financial risk management perspective, hence the fact of being on top during hard times, turned Goldman in a kind of a target.

As a result, GS was fair or unfairly judged, and the events related with the firm reputation during 2010 assumed themselves as a "wake-up call" for the senior management. Therefore, GS started to analyze deeply what went so wrong that caused those negative effects, and on January 11th of 2011, Goldman Sachs published the 63-page "Report of the business Standards Committee", which described in detail the BSC's approach and 39 recommendations for a change.

Since the beginning of his career as an analyst until nowadays as a VP on Securities Division, he felt that with the new regulation GS has become even more focused on risk management, and there are three main outcomes from the implementations of BCS's recommendations that he feels that had a huge impact on Securities Division and in the firm as whole.

Firstly, the firm became 100 percent focused on uplifting the standard of client care. The client service and communication was improved, as well the implementation of individual accountability for the client's interests. There are constant trainings regarding those three points, specially for the securities division because of the high percentage of client-facing employees. Moreover, he believes that one of the best implementations was the creation of the

Client and Business Standards Committee (CBSC) in order to assess the best business practices reputational risk management and client relationship.

Secondly, BSC outcomes changed heavily the way Securities Division operates by striving for a greater reputational sensitivity and awareness. One of the crucial implementations of BSC was a division among the clients: professional investors, institutional accounts and high-net worth individuals.

On its personal view, this division was crucial to understand the capacity, experience and suitability of each client to make more or less complex transactions.

Moreover, new and rigorous standards were implemented for each transaction's review and approval, namely the "conditional approval" and "double checks" by senior levels. These new standards had the main objective of holding the employees accountable for addressing reputational and financial risks related with each singular transaction.

Finally, he highlighted the importance that the firm gives to reputational sensitivity and transparency by giving the example that one of the most critical responsibilities of the Securities Division is to provide highly detailed documents regarding complex and structures products originated by them.

The last point is related with a deeper commitment to individual and collective accountability. In order to achieve a higher level of commitment of employees with their own tasks, the firm reinforced and strives for personal accountability in each transaction and in the relationships with clients.

The VP emphasized that from his own personal experience within the GS culture, this is the best way for the employees to feel his work valuable, ending up on raising the firm´s standards and striving for a philosophy based on risk mitigation and transparency.

3.2 Operations Division Perspective

In order to deepen our study on understanding the impact of the regulation on GS, and the internal changes within the firm, we had an interview with a Vice President from the Operations Division. This interview revealed to be of the utmost relevance since it provided us with a clear view about what changed in the internal procedures, specifically regarding risk management. He started to emphasize that the Operations Division is the glue that holds the firm together, and over the last years it was submitted to countless internal changes in order to make sure that the firm, not only works accordingly with the new regulation, but is also able to meet the new standards of the market and the requirements of the clients.

Operations Division - Before Crisis

The VP explained that until 2008, the operations division processed every single trade manually, hence, the probability of the occurrence of missteps were significantly higher than now. The focus of the division was on trying to process the highest volume of trades in the best possible way, and despite the existence of a risk avoidance culture, the returns from processing high levels of transactions, more than offset the costs of inaccuracies inherent to such volumes. Before the new regulation, there was no rigorous risk analysis when the transactions were carried out at the request of independent clients - clients who just wanted to make transactions, and not advisory from GS -, since their will prevailed besides their own sophistication.

In general, while the products were more complex and the volumes were higher, the systems used were more archaic and the procedures to control the errors were more imperfect.

Impact of Regulation on GS

This VP stated that the Dodd Frank Act and the Basel III had a significant impact in the way the firm operates and processes trades, being warmly received by GS on an operational point of view. However, for a firm that strives for a world class risk management, those rules implied a lot of changes on the way firm operated.With the new regulations the volume of trades processed decreased, and the products became much more stable and simple. Therefore, in order to meet the new regulation and continue to strive on risk mitigation GS started by invested heavily on the improvement of its own procedures on a daily basis. To access those improvements, the major factors taking into account are the *minimum time* and the *maximum volume* always ruled by the most important one: *aiming for zero risk.* In his opinion, the greatest move of GS in the transforming the Operations Division, was to avail the new regulations demands regarding risk mitigation and bet heavily in new technologies. The focus of the firm from this division´s perspective is to achieve efficiency, by automating the procedures as much as possible and by specializing on electronic trading. Consequently, the firm endeavors to provide the fastest and more reliable service possible to its clients and also to other divisions within the firm.

Moreover, he stated that a stretched risk management became one of the most central efforts of operations. As an example, he mentioned that currently all the transactions are supervised by senior levels, and there are control teams within the division, which are specialized on identify suspicious activities, transactions that could evade the regulations, and anything that could jeopardize the reputation of the firm.

The impact of the BSC was also felt on an operational perspective. Currently, all transactions are evaluated on a risk management angle, since the willingness of a client is not enough by itself for GS accept to their requests. This approach was implemented in the sense that inasmuch as some refusals may incur financial costs to the firm, the costs related with a breach on regulation or in reputation would be incomparably higher.

Finally, he highlighted that the BSC´s implementation of the ownership policy to each person on each transaction reflects heavily three major progresses on the division’s activities: the more effective way each transaction is now executed and cleared by Goldman; the highly careful manner the client’s information is processed and communicated; and the mentality of each employee in improving all the procedures since they own their own work.

3.3. Financial Division Perspective

Goldman Sachs is recognized as one of the best on Wall Street when it comes to risk management, and by analyzing the Goldman Sachs Annual Report of 2007, we can conclude that the senior levels believed that risk management was at the core of firm´s culture and was one of the pillars for the firm's success. Going back in time until the years that preceded the meltdown, we analyzed the Goldman Sachs Annual Report of 2006, and we were able to understand the detail and effort that the firm endeavored in its risk assessment, as it will be explained below.

One of the measures that Goldman Sachs used to access the potential loss in its value, taking into account hypothetical adverse market movements which would affect its trading positions was the Value at Risk (VaR). In 2006, Goldman Sachs reported a VaR of the whole firm of 95 percent confidence interval with a one-day time horizon. Hence, the probability of its daily trading net revenues falls below the expectations by an amount equal or superior as the reported VaR was one in twenty. In another words, Goldman Sachs expected to perform worst than expectation only 12 times in one year. By comparison with 2005, VaR increased from $70 million to $101 million in 2006, and $138 million in 2007, which echoed the increase in the risk exposure of the firm, namely on equity prices and interest rates (see appendix 3 – figure 1). After the 2008 crisis, glitches with VaR were exposed. This ratio underrated risk magnitude, resulting in extreme leverage ratios of subprime portfolios, and some major institutions were unable to cover colossal losses as subprime values collapsed.

GS' financial approach - Before and after regulation

Nowadays, Goldman Sachs accesses is risk management with different liquidity ratios and measures, and according with one Finance Analyst of GS, there are a few areas in which the company strives to achieve outstanding performances while increasing the confidence of shareholders. This effort can be demonstrated by the way GS have been exceeding the capital requirements, and by the new approaches regarding keeping the firm as liquid as possible to face possible moments of economical distress.

One of those areas is the Liquidity Risk Management, in which the firm understands itself as the best in class, having as the most important liquidity policy to prefund estimated potential cash outflows in a liquidity crisis. This liquidity prefunded pool is called the Global Core Liquidity Assets (GCLA), being composed by cash and highly liquid government securities free from any creditor claims or liens. GS, in its Creditor Information, 2017 – Excess Liquidity – defines GCLA as the "*liquidity that we maintain to meet a broad range of potential cash outflows and collateral needs in a stressed environment. ... The first days or weeks of a liquidity crisis are the most critical to a company's survival" Apr 19, 2016.*

The Financial analyst stated that the purpose of the use of GCLA, is to provide Goldman Sachs with the ability of convert those assets into cash through their maturities of reverse repurchase agreements or entering into repurchase agreements. Therefore, Goldman Sachs limits its GCLA to a restricted list of securities and cash that they found to be highly liquid to face a tough funding circumstances. According with the same Analyst, such operation would be possible to be done in few days, and the firm is now better prepared to face has a liquidity crisis. GS calculates its internal liquidity models - the Modeled Liquidity Outflow (MLO) and the Intraday Liquidity Model (ILM) - based on its GCLA. He also stated that the bank strives to make sure that the size of GCLA is not only based on both models, but also on the applicable regulatory requirements and in rigorous and conservative long-term stress tests that address a view on Goldman liquidity positions for a prolonged stress period.

Regarding the evolution of GCLA, he highlighted that Goldman Sachs achieved extraordinary results, since it increased this value from $97 billions in 2008, to $218 billions in the first quarter of 2017. Even more impressive, was the increase of 21 percent from 2014

($180 bn) until 1Q2017 (see appendix 3 – figure 3).

There were two major points emphasized by the analyst regarding GS ability to survive through a stress period. Firstly, Goldman's GCLA is divided in two portions, one held in U.S and other outside U.S in order to be able of matching the currency and timing requirements of each region. Secondly, Goldman Sachs has also other unencumbered securities not included on GCLA, such as German, French, Japanese and U.K government obligations, providing an even higher liquidity on the balance sheet of the company, which ultimately means that the company as more flexibility to manage its endurance during rough periods. Another important fact regarding liquidity and risk management that, according with this analyst, demonstrates the long-term commitment of GS on meeting the requirements imposed by regulators, is the fact that GS Liquidity Coverage Ratio (LCR) exceeds the fully phased-in 100% minimum requirement approved by U.S federal bank regulatory agencies – Dodd Frank Act and Basel III.

Regarding Asset-Liability Management policies, Goldman Sachs assumes itself as highly conservative, and paraphrasing this analyst, *"the ability to maintaining our balance sheet highly liquid and the capacity of manage our assets and liabilities in an efficient way is our most crucial risk management asset".* Therefore, more than 90% of Goldman's balance sheet is comprised in liquid assets, such as cash, reverses/borrows and U.S government financial instruments. He also stated that, in order to mitigate the risk, the firm's principal sources of funding are highly diversified. This statement can be corroborated by analyzing GS creditor information of 2017. Hence, as of 4Q16, Goldman had $120.6bn in Secured Funding, $86.9bn in Shareholders Equity, 199.4bn and $35.9bn in Unsecured Long and Short-Term Debt respectfully, and $124.1bn in Deposits (see appendix 3 – figure 4). This sources are allocated in GCLA & Cash (26%), Secured Client Financing (23%), Institutional Clients (36%), Investing & Lending (12%) and Other assets (3%). Moreover, the firm accentuates the diversification of unsecured funding, not only by sources, but also across currency. In 2016, it was split by 61% in USD, 35% in EUR, 2% in JPY, 1% in CHF, and the other 1% in other various currencies.

In order to understand better the effort that Goldman Sachs has been making regarding risk management, we compared the values of VaR between 2007 and 2017. According with the creditor information 2017, the values of VaR in the 1Q17 reached $64 millions, which represents a decrease of $74 millions on this value after the crisis (2007), and an even more impressive drop of $154 millions when compared with VaR of 2009 (see appendix 3 – figures 1 and 2).

When asked to make a comparison regarding risk management achievements of the firm, taking into account the before and after crisis, this Financial Analyst had no doubts in emphasizing that GS reduced its Level 3 Assets in more than 50% over the last 10 years (see appendix 3 – figure 5). It is important to note that Level 3 Assets was heavily scrutinized during the meltdown of 2007, by being a measure that uses highly illiquid assets to the estimation of risk-adjusted value ranges. Therefore, the lower the value of Level 3 Assets, the higher the liquidity of the firm. By analyzing the Overview of the company published in May of 2017, we can support the analyst statements by verifying that the firm have been managing its risk in an effective way when comparing the 4Q07 with the 1Q17. Hence the, mentioned above decrease of Level 3 Assets, resulted from a decrease of 20% in the balance sheet, an increase of 1.9x of the common equity, an increase of 3.6x the GCLA, and a decrease of 61% regarding gross leverage.

Finally, this analyst stated that all the already mentioned changes regarding Risk Management, clearly shows to regulators and society that Goldman Sachs not only, have been highly committed in reducing their risk and exposure to the markets, but it will also certainly meet the capital requirements imposed by regulatory reforms for 2019.

3.4 Discussion of Results

Analysis

The effort of GS to change internal procedures in order to meet the requirements of the Dodd-Frank Act and the Basel III are more than evident after the analysis of all the financial reports and the testimonials. From the senior levels of GS, we were able to perceive that the implementation of BSC requirements, the new operational policies, the investment in technology and the fresh approach to risk management and liquidity, reveled to be highly positive not only to its reputation but also to the development and strengthen of the firm. Moreover, by the nature of the new implementations, its possible to conclude that they represent a long-lasting bet of the firm on striving to achieve the highest standards in terms of reputation and results while living in a different environment.

One crucial point regarding the analysis of the interviews and data, is that GS went beyond the requirements on all its levels. This fact demonstrates that the firm realize that, despite the crisis being the same for all the industry, the GS case was different, hence the firm response was different as well.

Methods of discussion

To judge the impact of the Dodd-Frank Act and Basel III on GS, the interviewees were asked compare the times before and after crisis, and financial reports/data from 2006/7 and 2016/7 were analyzed from a risk management perspective.

Securities Division

Regarding the main revenue division from GS, there were enormous changes implemented. Despite BSC had been created and implemented across all the firm, it was on securities division that it had the bigger impact. Before the crisis there were no division of clients, the expenses were not a factor addressed, and the style in terms of "sales" was mostly made in a competitive style.

After the regulation being implemented, GS start becoming highly focused on the client's interests by improving a personal accountability for the client's interests and with the creation of the CBSC. Additionally, it was implemented the division among clients regarding their level of sophistication and nowadays not all clients can make complex and strategic transactions with the firm. This Division gained a strategic importance in terms of the reputation of the firm. Therefore, the "conditional approval" approach was implemented, and the individual and collective accountability was pushed to a different level within the division in order to exceed the client's experience and mitigate the risks.

Operations Division

The transformations occurred in the operations division in order to adapt to a market changed by the regulations were enormous. Before 2008, the processes were highly manual and the risks were enormous. The division focused in process high volumes of trades and there was not a relation with clients. From 2008 onwards the role of this division is highly related with risk management. There is no space for mistakes and all the transactions are investigated and the sensitive tasks require double checks and senior levels approval. The main goal is now efficiency instead of volume, and there is a focus on improving all the procedures in order to mitigate risks associated with them. Therefore, GS invested highly on technology, and the automation of processes became a priority to this division.

Finance Division

On a financial perspective we were able to not only, measure the impact that all the transformations made in other divisions had on GS, but also meet the new approach of the Financial Division regarding risk management in order to match the regulation requirements.

The increase of the VaR from 2005 to 2007, demonstrates the way that the firm became highly exposed to the market during the meltdown. After crisis, in order to meet the regulation requirements GS refreshed its approach to risk management, and is now mainly focused in two areas areas, the Liquidity Risk Management and Asset-Liability Management.

Regarding Liquidity Risk Management, GS uses the GCLA as the measure of its liquidity, and its increase from 2008 until 1Q2017 translate the higher capacity of the firm to survive a liquidity crisis. Moreover, it is important to notice that GS have been showing to regulators their commitment in meet their requirements by 2019, by presenting a LCR that exceeds the fully phased-in 100% minimum requirement approved by regulators. Concerning the Asset-Liability Management, the firm has more than 90% of its balance sheet covered by liquid assets, and a high level of diversification. Therefore, GS was able to recognize the risks incurred in the past, and now presents itself with a higher level of liquidity and flexibility.

4. Conclusions

This thesis contributed for the 2008 financial crisis literature, by assessing the approach of a financial institution to the new regulation and to a new market environment, after taking into account personal experiences, financial methodologies and a variety of observable factors.

The financial data combined with personal testimonials analysis proved to be crucial to understand what was the real impact of the Dodd-Frank Act and Basel II on Goldman Sachs.

Therefore, was interesting to access the cross-firm-wide major internal changes made by GS, from the operational procedures to the financial and risk assessment approach. The key outcome of this analysis is that the reputational impact was substantial, and that the company has a long-term vision for all the implemented changes and stagnate is not part of its culture.

In summary, we observe that GS have been highly committed to succeed in a more regulated market, and by exceeding the requirements imposed by regulators we can expect that the firm will certainly meet the capital requirements imposed for 2019.

Moreover, by being able to understand what changed in the culture and internal approaches of a financial institution instead of looking only to financial reports, we expect that our analysis on GS will inspire similar approaches in future financial researches.

References

F. John Mathis, Frank Tuzzolino and Venkat Ramaswamy. 2010. Global Financial Crisis and The Future of Securitization. Harvard Business Review.

Greenspan, A. (March 9, 2010). “The Crisis”. Brookings institution Working Paper.

Gorton, G. (February 20, 2010). “Questions and answers about the financial crisis”. Paper prepared for the U.S. Financial Crisis Inquiry Commission.

Andreas A.Jobst. 2007. What is Structured Finance, published in *The Securitization Conduit*, Vol. 8 (2005/6) and in *ICFAI Journal of Financial Risk Management* (2007).

Shepherd, B. 2005. “The Synthetic CDO Shell Game,” *Investment Dealer’s Digest* (16 May).

Adrian Blundell-Wignall. 2007. “Structured Products: Implications for Financial Markets” Financial Market Trends, OECP, Paris, Volume 2007/2, No.93, p, 29-57; p 43, p 34-38.

Gert Wehinger. 2009. “*The Turmoil and the Financial Industry: Developments and Policy Responses*” Financial Market Trends, OECD Journal, Volume 2009/1, PP. 29-60.

IMF. 2009. “*Navigating the challenges Ahead,”* Global Financial Stability Report, Washington DC, October 2009, p.32.

Roger Alford. 2010. LSE Financial Markets Group Paper Series – “*Some Help in Understanding Britain´s Banking Crisis*”, 2007-09.

Jonathan Adair Turner, Baron Turner of Ecchinswell: FSA Financial Services Authority - The Turner Review, March 2009, “A Regulatory Response to the Global Banking Crisis”. pp 86

Basle Committee on Banking Supervision. 1998. International Convergence of Capital Measurement and Capital Standards

Laurent Balthazar, 2006. From Basel 1 to Basel 3: The Integration of State-of-the-Art Risk Modeling in Banking Regulation.

Basel Committee on Banking Supervision. 2006. “International Convergence Convergence of Capital Measurement and Capital Standards, A Revised Framework”

Robert C. Pozen. 2010. “Too Big to Save? : How to Fix the U.S. Financial System” Wiley, Hoboken, NJ, 2010, p.144.

Sheila Bair. 2009. “Remarks by FDIC (Federal Deposit Insurance Corporation) Chair Sheila

Bair to the Institute of International Bnakers Annual Washignton Conference, Washignton DC" March 2,

Jón Danielson. 2001. "An Academic Response to Basel II", LSE Financial Markets Group Special Paper Series, Special Paper N0.130, May 31, 2001

Basel Committee on Banking Supervision. 2010. "Group of Governors and Heads of Supervision announces higher global minimum capital standards" Ref no: 35/2010

Jordi gual, Oriol Aspachs-Bracons, Mathias Bulach and Sandra Jódar-Rosell. October 2010. "Hacia una nueva arquitectura financeira", Economic Reseach and Analysis.

Basel Committee on Banking Supervision. 2010. Basel III: A global regulatory framework for more resilient banks and banking system (December 2010. Rev June 2011)

Thomas F. Cosimano and Dalia S. Hakura. 2011. "Bank Behavior in Response to Basel III: A Cross-Country Analysis"

Kupiec, P. H. (2013). Basel III: Some costs will outweigh the benefits. AEI (American Enterprise Institute) Outlook Series, (Nov2013, p1).

Dodd-Frank Wall Street Reform and Consumer Protection Act. 2010

Arthur D. Postal. 3 June 2014. "'Collins Amendment' to Get Expedited Treatment in Senate". Property Casualty 360. Retrieved 4 June 2014.

Martin Neill Baily, Aaron Klein, and Justin Schardin. 2017. "The Impact of the Dodd-Frank Act on Financial Stability and Economic Growth".

Morrison & Foerster. July 22, 2010. The Volcker Rule Provisions.

Hugh Son, Andrew Frye, and Betty Liu. August 17, 2010. "Berkshire May Scale Back Derivative Sales after Dodd-Frank", Bloomberg.

Goldman Sachs Annual Report, from 2007 until 2016.

Goldman Sachs – Overview of Goldman Sachs, May 2017.